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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR		ATTORNEY DOCKET NO.
08/862,045	05/22/97	TAKUMAN	O	TSL1194

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DOW CORNING CORPORATION
PATENT DEPARTMENT MAIL C01232
MIDLAND MI 48686-0994

EXAMINER	
MILSTEAD,M	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/862,045	Applicant(s) Takuman, O.
	Examiner Mark Milstead	Group Art Unit 1712

☒ Responsive to communication(s) filed on *Feb 1; 1999* .

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-10 and 13-17* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-10 and 13-17* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 8-10, 13-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunieda, U.S. Patent No. 5,369,161, in view of Azechi, U.S. Patent No. 5,691,407.

As for claim 1, Kunieda, in column 2, lines 18-45, teaches a composition of 100 parts by weight organopolysiloxane represented by the formula $R_aSiO_{(4-a)/2}$, where R is a substituted or unsubstituted monovalent hydrocarbon and the a value is 1.98 to 2.02; 15 to 300 parts by weight of aluminum hydroxide; 1-20 parts by weight of an organosilane; and a curing agent made up of an organoperoxide. Kunieda teaches the same composition as claimed by Applicants, except that the organosilanes of Component (B) are selected from a group consisting of organomethoxysilanes, an organoethoxysilanes and organosilazanes.

Azechi, in column 2, lines 34-47, teaches a 100 parts by weight organopolysiloxane having a least two aliphatic unsaturated hydrocarbon groups each attached to a silicon atom in a molecule; about 50 to about 300 parts by weight of surface treated aluminum hydroxide; and a curing agent made up of an organohydrogenpolysiloxane and a platinum catalyst. Azechi, in column 4, lines 26-48, teaches aluminum hydroxide is surfaced treated with suitable agents, such as vinyltrimethoxysilane, vinyltriethoxysilane, trimethylethoxysilane and hexamethyldisilazane.

Kunieda and Azechi are analogous art because they come from the same field of endeavor, which is silicone rubber compositions for high-voltage electrical insulators, and they are solving similar problems, which is a developing rubbery elastomers superior in high voltage insulating characteristics such as resistance to weather, to erosion, to tracking and to arc under severe contaminative or weather conditions after heat curing.

At the time of the invention, one skilled in the art would have surfaced treated the aluminum hydroxide with organomethoxysilanes, organoethoxysilanes or organosilazanes. The motivation for doing so would have been that surface treatment of aluminum hydroxide with such compounds was well known in the art of electrical insulating silicone rubber compositions. One skilled in the art would have known that the surface treatment was essential for improving arc resistance and tracking resistance. Optimization of the desired properties of the electrical insulating silicone rubber composition would be enhanced by using various surface treatment agents. Therefore, it would have been obvious to combine Kunieda with Azechi to obtain the invention as specified in claim 1.

As for claim 2, Kunieda, in column 2, lines 65-69, teaches that the viscosity for the organopolysiloxane gum should be is 1,000,000 centipoise at 25°C or higher.

As for claim 3, Kunieda does not expressly disclose the polyorganosiloxanes used in the composition. Azechi, in column 3, lines 40-56, by drawn structures teaches a vinyldimethylsiloxy-endblocked polydimethylsiloxane and vinyldimethylsiloxy-endblocked dimethylsiloxane-vinylmethylsiloxane copolymer as the polyorganosiloxanes for the electrical insulating silicone rubber composition.

Kunieda and Azechi are analogous art because they come from the same field of endeavor, which is silicone rubber compositions for high-voltage electrical insulators, and they are solving similar problems, which is developing rubbery elastomers superior in high voltage insulating characteristics such as resistance to weather, to erosion, to tracking and to arc under severe contaminative or weather conditions after heat curing.

At the time of the invention, one skilled in the art would have used vinyldimethylsiloxy-endblocked polydimethylsiloxane and vinyldimethylsiloxy-endblocked dimethylsiloxane-vinylmethylsiloxane copolymer as the polyorganosiloxanes for the electrical insulating silicone rubber composition. The motivation for doing so would have been that the polyorganosiloxanes were well known in the art of electrical insulating silicone rubber compositions. One skilled in the art would know that these silicone rubbers would be suitable polyorganosiloxanes for the

desired purpose. Therefore, it would have been obvious to combine Kunieda with Azechi to obtain the invention as specified in claim 3.

As for claim 4, Kunieda, in column 3, lines 22-25, teaches average particle diameter of aluminum hydroxide is smaller than 5 μm, preferably smaller than 1 μm.

As for claim 5, 6, 8, 9, 15 and 17, Kunieda, in column 3, lines 33-35, teaches that the ". . . essential component for improving the resistance to weather, to tracking, and to erosion . . ." is an organosilane or organosiloxane oligomer. Kunieda teaches the addition of an organosilane to the composition that includes aluminum hydroxide. Applicants have stated in the disclosure, on page 5, lines 23-26, that the components can be added all together and the aluminum hydroxide would be considered treated with the organosilane. Thus, Kunieda teaches an organosilane surface treated aluminum hydroxide. Kunieda does not disclose that the organosilanes are organoethoxysilanes and organomethoxysilanes or that organosilazanes can be used to treat the surface of aluminum hydroxide. Kunieda does not disclose any specific organosilanes.

Azechi, in column 4, lines 26-48, teaches that the aluminum hydroxide is treated with silanes and silazanes. The specific relevant organosilanes taught are vinyltrimethoxysilane and vinyltriethoxysilane. The specific relevant organosilazanes taught are hexamethyldisilazane and divinyltetramethyldisilazane.

Kunieda and Azechi are analogous art because they come from the same field of endeavor, which is silicone rubber compositions for high-voltage electrical insulators, and they are solving similar problems, which is developing rubbery elastomers superior in high voltage insulating characteristics such as resistance to weather, to erosion, to tracking and to arc under severe contaminative or weather conditions after heat curing.

At the time of the invention, one skilled in the art would have used organoethoxysilanes, organomethoxysilanes and organosilazanes for treating aluminum hydroxide in the electrical insulating silicone rubber composition. The motivation for doing so would have been that the specific organosilanes and organosilazanes were well known in the art of treating aluminum hydroxide in electrical insulating silicone rubber compositions. One skilled in the art would know that these treating agents would be suitable for treating aluminum hydroxide to achieve the desired properties of the composition. Therefore, it would have been obvious to combine Kunieda with Azechi to obtain the invention as specified in claim 5, 6, 8, 9 15 and 17.

As for claim 10, Kunieda, in column 3, lines 65-67, teaches that amount of organosilane to be used is in the range of 1 to 20 parts by used on 100 part by weight of the polyorganosiloxane gum.

As for claim 13 and 14, Kunieda, in column 3, lines 1-19, teaches that a finely divided silica is used in the range of 10 to 100, parts by weight, based on 100 parts by weight of the

polyorganosiloxane gum. Kunieda specifies a choice of "fumed silica of ultra-fine particles smaller than 50 μm in particle diameter and larger than 100 m^2/g in specific surface area is preferred."

4. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunieda in view of Azechi, as discussed above, in further view of Onishi, U.S. Patent No. 5,625,022.

Kunieda in view of Azechi teaches all the limitation of the claims, as discussed above, except the specific use of methyltrimethoxysilane to surface treat aluminum hydroxide. Onishi, in column 6, lines 64-67 and in column 7, lines 1-6, teaches that it is standard practice to treat inorganic fillers such as aluminum hydroxide when used in silicone rubber compositions. Moreover, the inorganic filler, such as aluminum hydroxide, is treated with an organoalkoxysilane such as methyltrimethoxysilane.

Kunieda, Azechi and Onishi are analogous art because they are from the same field of endeavor, which is curable organopolysiloxanes with inorganic fillers. One skilled in the art at the time of the invention would have employed the use of methyltrimethoxysilane to surface treat aluminum hydroxide in a silicone rubber composition. The motivation for doing so would have been that the surface treatment of the aluminum hydroxide in electrical insulating silicone rubber compositions is well known and methyltrimethoxysilane is a treating agent known to make

inorganic fillers such as aluminum hydroxide more miscible with the polyorganosiloxane composition.

Therefore, it would have been obvious to combine Kunieda, Azechi and Onishi to obtain the invention as specified in claims 7 and 16.

Response to Arguments

4. Applicant's arguments with respect to claims 1-6, 8-15 have been considered but are moot in view of the new ground(s) of rejection.

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, .

Examiner respectfully disagrees with Applicants' arguments concerning claims 7 and 16. Applicants' are reading Onishi as teaching the treatment of aluminum hydroxide with methyltrimethoxysilane and using it in a polyorganosiloxane for improving electrical insulating

properties. Examiner is using Onishi to teach that methyltrimethoxysilane can be used to treat inorganic fillers such as aluminum hydroxide, which is listed. Kunieda in view of Azechi teaches that the surface treatment of aluminum hydroxide is critical to improve electrical insulating properties. Examiner is combining the known fact that methyltrimethoxysilane is a known treating agent of aluminum hydroxide in silicone rubber compounds (Onishi) with the teachings that surface treated aluminum hydroxide improves the electrical insulating properties of silicone rubbers (Kunieda in view of Azechi).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark W. Milstead whose telephone number is (703) 305-0642.

Mark W. Milstead

March 3, 1999

MELVYN I. MARQUIS
PRIMARY EXAMINER
GROUP